

PERFORMANCE SPECIFICATION  
RESISTORS, VARIABLE, NONWIRE-WOUND, PRECISION,  
STYLE RQ160

This specification is approved for use by all Departments  
and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This specification covers the requirements for style RQ160, variable, nonwire-wound, precision resistors.

1.2 Classification.

1.2.1 Part or Identifying Number (PIN). The PIN will be in the following form:

Single-section (cup) resistors

|       |  |                            |                                   |                                   |  |   |                       |
|-------|--|----------------------------|-----------------------------------|-----------------------------------|--|---|-----------------------|
| RQ160 | A  | A                          | 1                                 | 2                                 | A  | B   | 103                   |
| Style | Resistance<br>temperature<br>characteristic,<br>maximum<br>ambient<br>temperature<br>and taps<br>(1.2.2) | Shaft<br>length<br>(1.2.3) | Moisture<br>resistance<br>(1.2.4) | Life<br>characteristic<br>(1.2.5) | Function<br>conformity<br>tolerance<br>characteristic<br>(1.2.6) | Output<br>smoothness<br>characteristic<br>(1.2.7) | Resistance<br>(1.2.8) |

1.2.2 Resistance temperature characteristic, maximum ambient temperature and taps. The resistance temperature characteristic, maximum ambient temperature and taps applicable to this specification are symbols A and B.

1.2.3 Shaft length. The shaft length applicable to this specification are symbols A to F, inclusive.

1.2.4 Moisture resistance. The moisture resistance applicable to this specification are symbols 1 and 2.

1.2.5 Life Characteristic. The life characteristics applicable to this specification are 1 to 4, inclusive.

1.2.6 Function conformity tolerance characteristic. The function conformity tolerance characteristic applicable to this specification are symbols A to E, inclusive.

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Defense Supply Center, Columbus, ATTN: DSCC/VAM, 3990 East Broad Street, Columbus, OH 43213-1199 by using the Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

1.2.7 Output smoothness characteristic. The output smoothness characteristic applicable to this specification are symbols A to E, inclusive.

1.2.8 Resistance. The nominal total resistance values and maximum end voltage applicable to this specification will be in accordance with table I.

TABLE I. Nominal total resistance values and maximum end voltage.

| Nominal total resistance values | Maximum end voltage<br>(percent of total applied voltage) |
|---------------------------------|---|
| <u>Ohms</u>                     | <u>Percent</u>  |
| 1,000                           | 1.4   |
| 2,000                           | 1.3   |
| 5,000                           | 1.3   |
| 10,000                          | 1.3   |
| 20,000                          | 1.3   |
| 50,000                          | 1.3   |
| 0.10 Megohm                     | 1.3   |
| 0.20 Megohm                     | 1.3   |
| 0.50 Megohm                     | 1.3   |
| 1.00 Megohm                     | 1.3   |
| 2.00 Megohms                    | 1.3   |
| 3.00 Megohms                    | 1.3   |

## 2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in sections 3 and 4 of this specification. This section does not include documents cited in other sections of this specification or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements documents cited in sections 3 and 4 of this specification, whether or not they are listed.

### 2.2 Government documents.

2.2.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the issue of the Department of Defense Index of Specifications and Standards (DoDISS) and supplement thereto, cited in the solicitation (see 6.2).

## SPECIFICATION

### DEPARTMENT OF DEFENSE

MIL-PRF-39023 - Resistors, Variable, Nonwire-Wound, Precision, General Specification for.

(Unless otherwise indicated, copies of the above specifications, standards, and handbooks are available from the Defense Automated Printing Service, Building 4D (DPM-DODSSP), 700 Robbins Avenue, Philadelphia, PA 19111-5094.)

2.3 Order of precedence. In the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

### 3. REQUIREMENTS

3.1 General. The requirements for acquiring the product described herein shall consist of this document and MIL-PRF-39023.

3.2 Interface and physical dimensions. The resistors shall meet the interface and physical dimension specified in figure 1.

3.3 Minimum total resistance. The minimum total resistance value shall be 1,000 ohms.

3.4 Maximum total resistance. The maximum total resistance value shall be 3.0 megohm.

3.5 Mechanical travel. The mechanical travel shall be 3600 degrees + 100 degrees, - 0 degrees continuous.

3.6 Theoretical electrical travel. The theoretical electrical travel shall be 3600 degrees.

3.7 Ganged cups. There shall be no more than 2 cups ganged.

3.8 Phasing. The phasing shall be for simultaneous conformity.

3.9 Weight. The maximum weight shall be 5.0 ounces and each additional cup shall be 4.0 ounces.

3.10 Function conformity. The type of conformity shall be independent linearity.

### 4. VERIFICATION

4.1 Sampling for delivery shall be in accordance with MIL-PRF-39023.

### 5. PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When actual packaging of materiel is to be performed by DoD personnel, these personnel need to contact the responsible packaging activity to ascertain requisite packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activity within the Military Department or Defense Agency, or within the Military Department's System Command. Packaging data retrieval is available from the managing Military Department's or Defense Agency's automated packaging files, CD-ROM products, or by contacting the responsible packaging activity.

### 6. NOTES

(This section contains information of general or explanatory nature that may be helpful, but is not mandatory.)

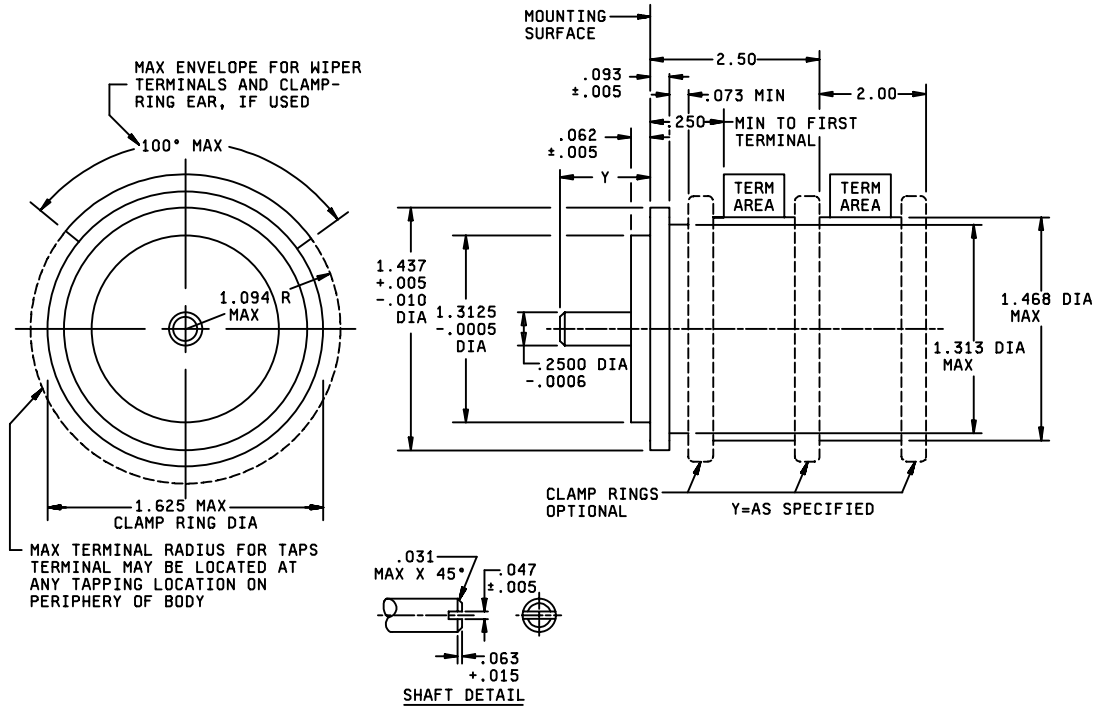
6.1 Intended use. The intended use specified in MIL-PRF-39023 will be applicable to this specification.

6.2 Acquisition requirements. Acquisition documents must specify the following:

- a. Title, number, and date of this specification, and the complete PIN (see 1.2).
- b. Issue of DoDISS to be cited in the solicitation, and if required, the specific issue of the individual documents referenced (see 2.1).
- c. Packaging requirements (see 5.1).

6.3 PIN. This specification requires a PIN that describes technology and appropriate references to associated documents (see 1.2 and 3.1).

6.4 Changes from previous issue. Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extent of the change.



| Inches | mm   | Inches | mm   | Inches | mm   | Inches | mm    | Inches | mm    | Inches | mm    |
|--------|------|--------|------|--------|------|--------|-------|--------|-------|--------|-------|
| .0005  | 0.01 | .015   | 0.38 | .063   | 1.60 | 1.094  | 27.79 | 1.468  | 37.29 | 2.50   | 63.50 |
| .0006  | 0.02 | .031   | 0.79 | .073   | 1.85 | 1.3125 | 33.34 | 1.625  | 41.28 |        |       |
| .005   | 0.13 | .047   | 1.19 | .093   | 2.36 | 1.313  | 33.35 | 2.00   | 50.80 |        |       |
| .010   | 0.25 | .062   | 1.57 | .250   | 6.35 | 1.437  | 36.50 | 2.025  | 57.15 |        |       |

NOTE: Dimensions are in inches. Metric equivalents are given for general information only.

| Style | Turns | Maximum continuous working voltage (volts) | Power rating (watts) <u>1</u> / | Maximum starting and running torque (ounce-inch) |         |                         |         | Stop-Torque (pound-inch) |
|-------|-------|--|---------------------------------|--|---------|-------------------------|---------|--------------------------|
|       |       |  |                                 | Single cup                                       |         | Per each additional cup |         |                          |
|       |       |  |                                 | Starting   | Running | Starting                | Running |                          |
| RQ160 | 10    | 500  | 3.5                             | 1.5  | 1.0     | 1.5                     | 1.0     | 8                        |

<sup>1/</sup> When 2 single units are ganged, the first cup shall be rated at 75 percent of single unit wattage rating and second cup shall be rated at 60 percent of rated wattage

FIGURE 1. Style RQ160

MIL-PRF-39023/7B

Custodians:

Army - CR  
Navy - EC  
Air Force - 85

Preparing activity:

DLA - CC

Review activities

Army - AR, AT, AV, CR4, MI  
Navy - AS, CG, MC, OS  
Air Force - 17, 19, 99

(Project 5905-1506-07)